

EFFECT OF COLOUR VISION ON OCULAR DEVIATION

ABSTRACT

Purpose: The aim of the present study is to correlate effect of colour vision in the presence of ocular deviation.

Methods: A pilot, cross sectional, observational study was performed at tertiary eye care centers. Subjects with Ocular deviation between 10 to 40 prism diopters, Corrected distance Visual Acuity should be greater than 6/18 and Age should be between 10 to 40 years of age were included in the study. Colour vision was assessed with Fransworth Munsell D 15 colour vision test.

Results: 30 subjects were included in the study. Out of that, 16 subjects were in the age group of 11-20 years, 12 subjects were in the age group of 21-30 years and 2 subjects were in the age group of 31-40 years. 60% subjects were Female and 40% subjects were Male. Mean scores of visual parameters were taken. In 50 % of cases, colour vision was found normal, 33 % were having mild tritanopia and 17% were having moderate tritanopia.

Conclusions: In cases of ocular deviation, mild to moderate tritanopia can occur.

Keywords: Ocular Deviation, colour vision

INTRODUCTION:

25 Colour vision plays an important role in Binocular Single Vision. [1,2]For
26 colour vision, cone cells are precisely responsible. In cases of normal ocular
27 deviation, images of an object falls on the foveal region. [3]Due to anatomical
28 deformity, number of cone cells varied from region to region in macular area.
29 [4]That's why, in the ocular deviation, there are chances of deterioration of
30 colour vision in the presence of ocular deviation. [5,6]Image of an object will
31 fall on the para foveal region in cases of ocular deviation, so there are chances
32 that colour vision will deteriorate.[7]

33 **METHODOLOGY:**

34 A pilot, cross sectional, observational study was performed at tertiary eye care
35 centers. Subjects with Ocular deviation between 10 to 40 prism diopters,
36 Corrected distance Visual Acuity should be greater than 6/18 and Age should be
37 between 10 to 40 years of age were included in the study. Individuals with any
38 other systemic disease(specially which can affect study),Individuals with any
39 other Ocular Pathology,with any active ocular infection,any ocular anomalies
40 like corneal scar etc ,ocular deviation if less than 10 degree and Significant
41 amount of amblyopic patient were excluded from the study. Full refractive
42 correction along with detailed fundus evaluation was performed in each and
43 every patient. Colour vision was assessed with Farnsworth Munsell D 15 colour
44 vision test.

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46 **RESULTS:**

47 30 subjects were included in the study. Graph 1 shows distribution of subjects in
48 various age groups.16 subjects were in the age group of 11-20 years, 12 subjects
49 were in the age group of 21-30 years and 2 subjects were in the age group of 31-
50 40 years. Graph 2 shows gender wise distribution of the subjects. 60% subjects
51 were Female and 40% subjects were Male. Mean scores of visual parameters
52 were taken using SPSS Software version 20. Graph 3 shows 50 % of cases,
53 colour vision was found normal, 33 % were having mild tritanopia and 17%
54 were having moderate tritanopia.

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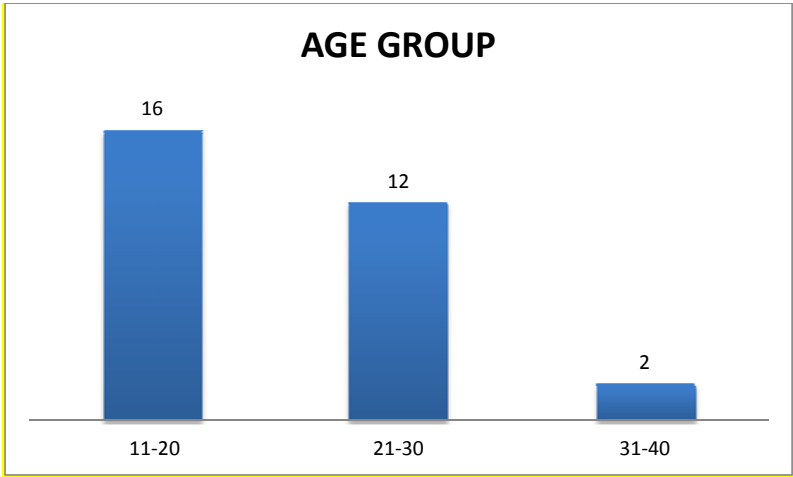
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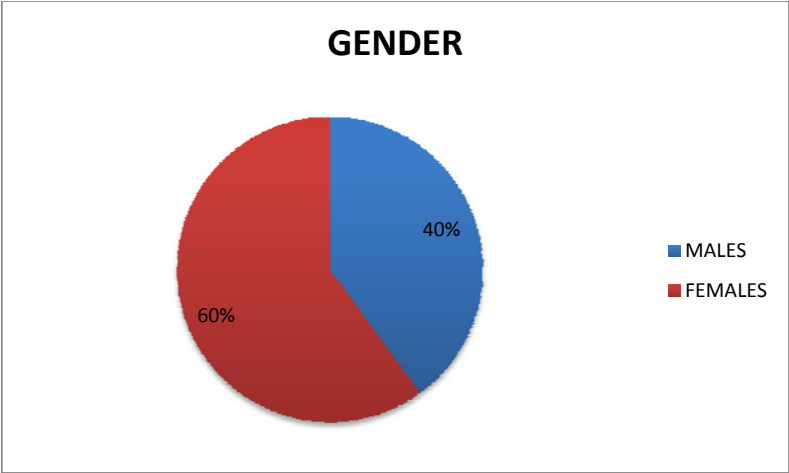
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GRAPH 1: shows age wise distribution of the subject



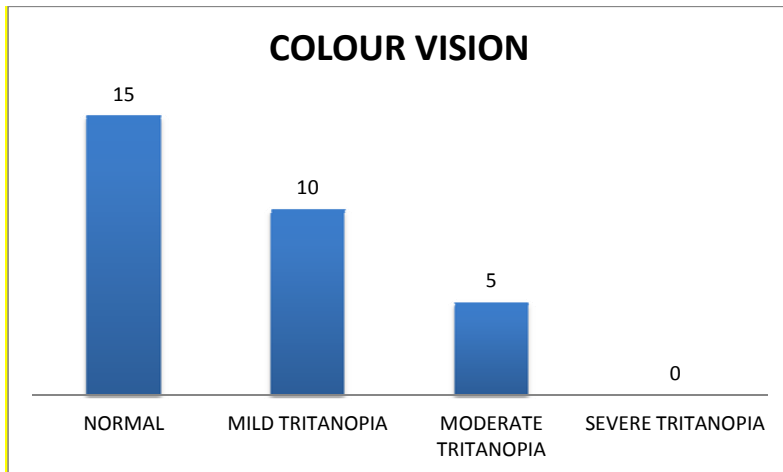
GRAPH 2 shows gender wise distribution of the subjects



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66 Graph 3: shows effect of colour vision in the presence of ocular deviation.



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69 Discussion:

70 Colour vision was tested with Farnsworth Munsell D-15 colour vision test.

71 Here 30 subjects were evaluated. Out of that 15 were having normal colour
72 vision, 10 were having mild tritanopia and 5 were having moderate tritanopia.
73 Severe tritanopia was not found in any patient. According to statistical analysis,
74 colour vision will deteriorate significantly with increase in ocular deviation. It
75 mainly occurs due to number of cone cell variation in the macular region. The
76 number of cone cells are highest in foveal region compare to parafoveal region.
77 Cone cell is completely responsible for Colour vision, so any anomaly in cone
78 cells will lead to deterioration of colour vision.

79 Conclusion :

80 In cases of ocular deviation, mild to moderate tritanopia can occur.

81 CONSENT :

82 Oral/ written consent was obtained from patient as well as from tertiary eye care
83 centres.

Comment [SRR1]: Conclusion should not be one line. Kindly elaborate and how you are justifying the colour vision deficiency? compare your results with previous study references.

use below articles as references in your discussion

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84 **ETHICAL APPROVAL:**

85 It is not applicable.

86 **References:**

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